(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organizati n
International Bureau

(43) International Publication Date
21 June 2001 (21.06.2001)

PCT

(10) International Publication Number
WO 01/45379 A1

(51) International Patent Classification[7]: H04M 15/00

(21) International Application Number: PCT/KR00/01453

(22) International Filing Date:
13 December 2000 (13.12.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
1999/57903 15 December 1999 (15.12.1999) KR

(71) Applicant *(for all designated States except US)*: TEL-COIN CO., LTD. [KR/KR]; 3F. Wooyoung Venture Bldg., 1330-13 Seocho-dong, Seocho-gu, Seoul 137-071 (KR).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: LEE, Jae-Hyok [KR/KR]; 6-706 Gaepo Hanshin Apt., Dogok 2-dong, Kangnam-gu, Seoul 135-272 (KR).

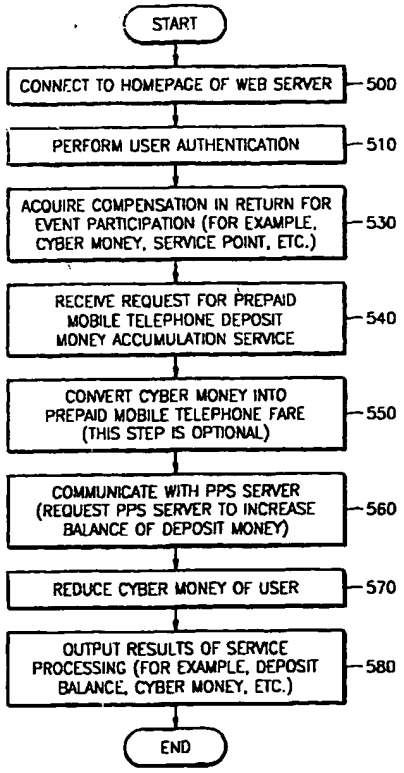
(74) Agent: LEE, Young-Pil; The Cheonghwa Building, 1571-18 Seocho-dong, Seocho-gu, Seoul 137-874 (KR).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GE, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: SYSTEM AND METHOD OF ACCUMULATING PREPAID MOBILE PHONE FARE USING COMPENSATION OBTAINED FROM WEB SERVER



(57) Abstract: A method of accumulating prepaid mobile telephone service fare using compensation acquired from a web server by linking a prepaid mobile telephone service system with the web server which provides an online service on the Internet, the method including (a) receiving a user's request that prepaid mobile telephone deposit money for a particular prepaid mobile telephone number is accumulated using compensation, acquired by a user registered in the web server on a communication network from the web server by participating in online events including a looking-at- advertisement section which provides a predetermined compensation in return for online participation, and (b) transmitting a deposit balance increasing request to increase the balance of the prepaid mobile telephone deposit money for a particular prepaid mobile telephone number, to a prepaid service (PPS) server which manages a prepaid mobile telephone number database, via a communication network, in response to the user's request received in step (a). Accordingly, compensation acquired by Internet users from a web server on the Internet can be promptly realized in the form of the free use of a mobile telephone generalized in the information society, through the co- operation between the web server and a prepaid mobile telephone service system. In particular, users can selectively use a free mobile telephone service by applying the present invention to the feature code using method or the particular number connection method.

WO 01/45379 A1

Published:
— *With international search report.*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

SYSTEM AND METHOD OF ACCUMULATING PREPAID MOBILE PHONE FARE USING COMPENSATION OBTAINED FROM WEB SERVER

Technical Field

The present invention relates to a method of transferring information via a communications network, and more particularly, to a method of accumulating compensation obtained from a web server in the form of prepaid mobile telephone service fare by linking a prepaid mobile telephone service system with the web server which provides an online service on the Internet.

Background Art

Due to the development of World Wide Web (WWW) techniques for supporting the expedient use of various resources or services provided on the Internet, the number of Internet users is rapidly increasing. Internet users can expediently surf the Internet while retrieving information in the world in real time by running a web browser and manipulating a mouse.

With an increase in the number of Internet users, most enterprises manage their web sites on the Internet, and post banners, which are advertising images including simple information on enterprises or products, on their web sites or those of other companies, in order to promote the enterprises and their products to Internet users via these banner advertisements or the like.

Also, a variety of business models on the Internet have been developed for Internet users, and numerous venture enterprises for Internet business have been established. The success of Internet business via particular web sites can be deemed to depend on the frequency of access to the web sites by Internet users. Accordingly, each web site plans various events to attract attention from Internet users, and attempts many methods of providing "a predetermined compensation" to Internet users in return for participation in the events.

U.S. Patent No. 5,794,210 discloses "attention brokerage" which is

a method of providing a certain amount of credit or cyber money to Internet users in return for connection to a site by clicking on banner advertisement, and discounting the price of products by the obtained credit.

Korean Laid-Open Publication No. 99-46192 discloses a method of transferring information via a computer network, in which particular icons or treasures are hidden on the home page of a sponsor, the number of icons or treasures found are totaled weekly or monthly, and premiums are provided to a user who obtains the highest score.

Korean Laid-Open Publication No. 99-73343 discloses "an advertising method on the Internet", in which subscribers download advertising programs. and receive prize money or prizes corresponding to the time of execution of the programs in a reserving or lottery system.

However, in this conventional compensation system, a reserve can be cashed only after it reaches a certain amount, or the probability of winning a prize in a lottery such as a premium lottery is low, so that there is a limit in attracting attention from Internet users. Even though credit or cyber money is provided. this is restricted to particular articles, and can be practically realized only at the time of purchasing the articles. An advertising method using elements associated with game, such as treasure finding, also has a problem in that compensation is realized at a certain time.

That is, conventional compensation systems for attracting attention from Internet users have a fundamental problem in that users must wait for a certain period of time until the compensation is realized. Therefore, the conventional systems have a limit in attracting positive interests from Internet users while and at the time when compensation is realized.

Detailed Disclosure of the Invention

In order to solve the above problem, an objective of the present invention is to provide a system and method of accumulating prepaid mobile telephone service fare using compensation acquired from a web server by linking the web server on the Internet with a prepaid mobile telephone service system, in order to instantaneously realize a variety of

compensations that Internet users acquire from the web server or service providers.

To achieve the above objective, there is provided a method of accumulating prepaid mobile telephone service fare using compensation acquired from a web server, according to an aspect of the present invention, the method including: (a) receiving a user's request that prepaid mobile telephone deposit money for a particular prepaid mobile telephone number is accumulated using compensation, acquired by a user registered in the web server on a communication network from the web server by participating in online events including a looking-at- advertisement section which provides a predetermined compensation in return for online participation; and (b) transmitting a deposit balance increasing request to increase the balance of the prepaid mobile telephone deposit money for a particular prepaid mobile telephone number, to a prepaid service (PPS) server which manages a prepaid mobile telephone number database, via a communication network, in response to the user's request received in step (a).

Preferably, the particular prepaid mobile telephone number is the mobile identification number (MIN) of a mobile communication terminal or the card number of a prepaid mobile telephone card.

It is also preferable that requesting the PPS server to register a prepaid mobile telephone number for a user registered in the web server is further included before the step (a).

Preferably, compensation capable of being used for the user request includes compensation acquired by participating in online events provided from another web server on the communication network.

It is preferable that a prepaid mobile telephone number other than the prepaid mobile telephone number of a user registered in the web server can be designated as the particular prepaid telephone number.

Preferably, the step (b) further includes converting the compensation into prepaid mobile telephone deposit money in a predetermined way and determining an amount of money for the deposit balance increasing request.

It is preferable that, in the step (b), a PPS server for managing a prepaid mobile telephone number database in which the particular prepaid mobile telephone number has been registered is selected with reference to the particular prepaid mobile telephone number, and the deposit balance increasing request is transmitted to the selected PPS server.

Preferably, the step (b) further includes setting up a connection-oriented communication channel for requesting the PPS server to increase the balance of the deposit.

Preferably, in the step (b), the deposit balance increasing request is transmitted to the PPS server via a particular brokerage server on a communication network.

It is preferable that the particular brokerage server manages a client database for all mobile telephone service clients.

To achieve the above objective, there is provided a method of accumulating prepaid mobile telephone service fare using compensation acquired from a web server, according to another aspect of the present invention, the method including: (a) receiving a user's request to accumulate the service points of a user registered in the first server on a communication network, acquired by using services provided by the first server, in the form of prepaid mobile telephone deposit money for a particular prepaid mobile telephone number; and (b) transmitting via a communication network an indirect service request in which the second server capable of setting up a communication channel for requesting a PPS server, which manages a prepaid mobile telephone number database, to increase the balance of prepaid mobile telephone deposit money, is requested to relay a deposit balance increasing request for a particular prepaid mobile telephone number to the PPS server, at the user's request received in step (a).

Preferably, the step (b) further includes converting the service points into prepaid mobile telephone deposit money in a predetermined way and determining an amount of money for the deposit balance increasing request.

Preferably, the step (b) further includes setting up a connection-

oriented communication channel for requesting the second server to relay the deposit balance increasing request.

To achieve the above objective, there is provided a method of accumulating a prepaid mobile telephone service fare using compensation acquired from a web server, according to still another aspect of the present invention, the method including: (a) receiving a user's request to convert the first service points of a first user registered in a first server on a communication network acquired by using services provided by the first server into the second service points of a second user registered in a second server which can set up a communication channel for requesting a PPS server which manages a prepaid mobile telephone number database to increase the balance of prepaid mobile telephone deposit money and provides a service for accumulating service points in the form of prepaid mobile telephone deposit money; and (b) transmitting via a communication network a service request in which the second server is requested to increase the second service points of the second user, at the user's request received in step (a).

To achieve the above objective, there is provided a method of accumulating prepaid mobile telephone service fare using compensation acquired from a web server, according to still another aspect of the present invention, the method including: (a) receiving from the service provider node an indirect service request that a deposit balance increasing request to accumulate service points, acquired by a user registered in a service provider node on a communication network by using services provided by the service provider node, into prepaid mobile telephone deposit money for a particular prepaid mobile telephone number is relayed to a PPS server which manages a prepaid mobile telephone number database, via a communication network; and (b) transmitting a deposit balance increasing request for the particular prepaid mobile telephone number, to the PPS server via a communication network, in response to the indirect service request received in step (a).

To achieve the above objective, there is provided a method of accumulating prepaid mobile telephone service fare using compensation

acquired from a web server, according to yet another aspect of the present invention, the method including: (a) a PPS server, which manages a prepaid mobile telephone number database. receiving a request to increase the balance of prepaid mobile telephone deposit money for a particular prepaid mobile telephone number, from the web server which provides a service for accumulating the service points of a user registered in the web server on a communication network in the form of prepaid mobile telephone deposit money, via the communication network; and (b) increasing the balance of the prepaid mobile telephone deposit money for the particular prepaid mobile telephone number, in the prepaid mobile telephone number database, at the service request received in step (a).

Preferably, before the step (a), this method further includes registering a prepaid mobile telephone number for a user registered in the web server, in the prepaid mobile telephone database at a request from the web server to register a prepaid mobile telephone number for a user registered in the web server.

It is also preferable that, in the step (b), the deposit balance increasing request of the web server is received via a particular brokerage server on a communication network.

To achieve the above objective, there is provided a system for accumulating prepaid mobile telephone service fare using compensation acquired from a web server. according to an aspect of the present invention, the system including: a web server which provides a prepaid mobile telephone deposit accumulation service for accumulating prepaid mobile telephone deposit money using service points acquired by a registered user participating in online events which provide service points in return for online participation; and a prepaid mobile telephone server which is connected to the web server via a communication network. and manages a prepaid mobile telephone number database, wherein the web server makes a request to the PPS server to increase the balance of the prepaid mobile telephone deposit money to provide the prepaid mobile telephone deposit accumulation service, via a communication network, and the PPS server increases the balance of the prepaid mobile telephone

deposit money for the particular prepaid mobile telephone number in the prepaid mobile telephone number database, at the request of the web server.

Preferably, a plurality of PPS servers exist, the prepaid mobile telephone number database of each of which includes only prepaid mobile telephone numbers within a predetermined range, and the web server selects a PPS server which manages a particular prepaid mobile telephone number and requests that the selected PPS server increase the balance of the prepaid mobile telephone deposit money.

It is also preferable that the system further includes a brokerage server for receiving a request to increase the balance of prepaid mobile telephone deposit money from the web server via a communication network and transmitting the received request to a PPS server which manages a prepaid mobile telephone number database via a communication network.

Preferably, the brokerage server manages a client database for all mobile telephone service clients.

Preferably, the system further includes an indirect service provider node which cannot set up a communication channel with the PPS server for requesting the PPS server to increase the balance of prepaid mobile telephone deposit money, wherein the indirect service provider node has at least one of a function of indirectly requesting the web server to relay a request to increase the balance of prepaid mobile telephone deposit money for a particular prepaid mobile telephone number to the PPS server, and a function of making a request for converting service points of the indirect service provider node of a user registered in the indirect service provider node into service points of the web server of a user registered in the web server, and the web server has at least one of a function of receiving the relaying request from the indirect service provider node and relaying the received request to the PPS server and a function of receiving a service point conversion request from the indirect service provider node and increasing the service points of the user registered in the web server at the service point conversion request.

Brief Description of the Drawings

FIG. 1 schematically shows the configuration of a system for providing a prepaid mobile telephone service in a mobile communication network;

FIG. 2 schematically shows the configuration of a prepaid mobile telephone service accumulation system using compensation acquired from a web server, according to an embodiment of the present invention;

FIG. 3 schematically shows the configuration of a prepaid mobile telephone service accumulation system using compensation acquired from a web server, according to another embodiment of the present invention;

FIGS. 4A through 4D schematically show the configuration of a prepaid mobile telephone service accumulation system using compensation acquired from a web server, according to still another embodiments of the present invention;

FIG. 5A is a flow chart for outlining a method of accumulating prepaid mobile telephone service fare using compensation acquired from a web server, according to an embodiment of the present invention;

FIG. 5B is a flow chart for outlining a member registration procedure in a web server according to an embodiment of the present invention;

FIG. 5C is a flowchart for outlining communication (interworking) procedures between a web server and a prepaid mobile telephone server to request an increase in the balance of deposit money;

FIG. 6 is a flowchart for outlining a method of accumulating prepaid mobile telephone service fare using compensation acquired from an indirect enterprise, according to an embodiment of the present invention;

FIG. 7 is a flowchart for outlining a method of processing a service request from an indirect enterprise in a web server, according to an embodiment of the present invention; and

FIG. 8 is a flowchart for outlining a method of processing a service request from a web server in a prepaid mobile telephone server, according to an embodiment of the present invention.

Best mode for carrying out the Invention

Embodiments of the present invention are based on the linking of a prepaid mobile telephone service system with a web server which provides an on-line service on the Internet. First, a prepaid mobile telephone service system will be described with reference to FIG. 1, which schematically shows the configuration of a system for providing a prepaid mobile telephone service in a mobile communication network.

A prepaid mobile telephone service is a service in which users deposit a certain amount of money in advance and use a mobile telephone within the limits of the deposit money. In order to provide prepaid mobile telephone service, a prepaid service (PPS) server 150 is introduced in a mobile communications network. The PPS server 150 manages a prepaid mobile telephone number database 152. The prepaid mobile telephone number database 152 stores mobile identification numbers (MIN) (including a password) for identifying prepaid mobile telephone service subscribers, and prepaid mobile telephone deposit money (hereinafter, referred to as deposit money). Here, the MINs typically denote prepaid mobile telephone numbers (the mobile telephone numbers of mobile communication terminals registered for the prepaid mobile telephone service). However, the prepaid mobile telephone service may be provided using a prepaid mobile telephone card. Hereinafter, the prepaid mobile telephone number is used to refer to a number which can be the card number of a prepaid mobile telephone card. The PPS server 150 reduces the balance of the deposit money according to the telephone traffic through the interface with a mobile service center (MSC) 110b.

Base station transceiver subsystems (BTSs; hereinafter, referred to as a base station) 100a and 100b, MSCs 110a and 110b and a home location register (HLR) 120 are fundamental for providing a mobile communication service. Signaling between the MSCs and between the MSCs, the HLR and the PPS server is performed via a signaling system number 7 (SS7) network 130. Generally, a base station control (BSC; not shown) is installed between a BTS and an MSC. The HLR 120 manages a database in which various subscriber information necessary for managing mobile communication subscribers is stored. In particular, the HLR 120

provides information on the current location of a receiving mobile station (that is, a mobile communication terminal) to a call originating MSC, so that it supports a call to be routed to an appropriate base station. A call from a call originating mobile station in the mobile communication service is transmitted to a call originating MSC via a call originating base station. The call originating MSC acquires information on a terminating (destination) MSC by communicating with the HLR with reference to a destination number, and is connected to the terminating mobile station via the terminating MSC and a terminating base station.

A prepaid mobile telephone service in a mobile communication network is roughly provided by a destination number dialing method, a feature code using method and a particular number connection method.

In the destination number dialing method, all calls attempted by mobile telephone subscribers are considered as prepaid mobile telephone calls and connected to the PPS server 150, and calls corresponding to deposited money are allowed through the communications between the MSC 110b and the PPS server 150. This method is the simplest method for users, but has a drawback in that a single mobile telephone terminal cannot make both general mobile calls and prepaid mobile calls.

In the feature code using method, when a mobile telephone subscriber dials a particular feature code (for example, a code which starts with special characters such as *88 or ** and is used for a special purpose), the MSC 110b connects the subscriber's call to the PPS server 150 through the communication with the HLR 120. Then, the PPS server 150 executes an authentication procedure in which an MIN and a password are checked, receives a destination number from the subscriber, and allows calls corresponding to deposit money. The feature code using method is slightly more complicated than the destination number dialing method, but provides opportunity for users to selectively make a prepaid mobile telephone call. That is, general dialing is charged as a general call, and only when a particular feature code is dialed can the call be charged as a prepaid mobile telephone call.

In the particular number connection method, a subscriber directly

dials a predetermined number to connect to the PPS server 150. The operation after a subscriber is connected to the PPS server 150 is the same as the feature code using method except that there is no communication with the HLR 120.

Embodiments of the present invention can be applied to each of the three methods. However, it is preferable that the embodiments of the present invention are applied to the feature code using method and the particular number connection method in order to further provide a selective prepaid mobile telephone service to general mobile telephone subscribers.

In the following, an embodiment of a system according to the present invention based on the linking of a prepaid mobile telephone service system with a web server that provides online services on the Internet, will be described.

The present invention proposes a method of realizing various service points or compensations, such as free calls from mobile telephones in real life, which are acquired by participating in a variety of events provided by a web server on the Internet or performing many economic activities in real life. There are basically two preferred embodiments of a system according to the present invention: one embodiment (hereinafter, referred to as the first embodiment) for directly providing a free use service for mobile telephones to members registered in a web server according to an embodiment of the present invention; and the other embodiment (hereinafter, referred to as the second embodiment) in which a service provider provides free use services for mobile telephones to members registered in its web server via the web server according to an embodiment of the present invention. First, the configuration of the system according to the first embodiment will be described.

FIG. 2 schematically shows the configuration of a prepaid mobile telephone service accumulation system using compensation acquired from a web server, according to a first embodiment of the present invention. As shown in FIG. 2, a PPS server 250 for managing a prepaid mobile telephon number database 252 operates together with a web server 200, via the Internet or Intranet.

The web server 200 according to an embodiment of the present invention (hereinafter, referred to as the instant web server) manages a home page 204 and provides various events or services to registered users (hereinafter, referred to as members). The instant web server 200 also manages a member DB 202. FIG. 2 shows a system in which the web server 200 manages the home page 204 and operates together with the PPS server 250. However, a web server as a front end for performing an interface with users and a communication server for performing communications with the PPS server 250 may be realized in separate systems depending on the type of application.

Hereinafter, the term "event" is used to refer to any services which provide a predetermined compensation in return for online participation to induce participation of members. Events include taking a look at an advertisement, online home shopping, enquete, online games, and others. Also, the term "compensation" is used to refer to any returns for event participation by members, which are provided in various forms such as a predetermined service point form, a cyber money form, a money reserving form, a coupon form, such as a discount coupon, a lottery form, and the like. This compensation (hereinafter, referred to as cyber money or a service point) is acquired from a web server by members' participation in events, and can be continuously reserved.

The instant web server 200 provides a prepaid mobile telephone deposit money accumulation service (hereinafter, referred to as a deposit money accumulation service) for accumulating reserved service points in the form of deposit money, to members. Thus, members can use their mobile telephones for free by a reserved service point by requesting the instant web server 200 to convert their reserved service point into deposit money. Preferably, the instant web server 200 registers the prepaid mobile telephone number of each member for the deposit money accumulation service while members are registered, and manages the registered prepaid mobile telephone numbers in a client DB 202. Also, preferably, the instant web server 200 provides a method of designating a particular prepaid mobile telephone number, when the deposit money accumulation service

is requested.

As another embodiment of the present invention, there is provided a method of converting a service point that members of the instant web server 200 acquired from a different web server into a service point of the instant web server 200. Also, the service point in this embodiment of the present invention can be extended to include various credit acquired from not only online event participation but also from real economic activities.

The instant web server 200 can request the PPS server 250 via a communication network to increase the balance of deposit money for a particular prepaid mobile telephone number in proportion to a reserved service point, in order to provide the deposit money accumulation service. Here, the communication network denotes a packet data network, such as the Internet or Intranet. The PPS server 250 receives a request to increase the balance of deposit money for a particular prepaid mobile telephone number from the instant web server 200, and manages the prepaid mobile telephone number database 252 to increase the balance of deposit money for the particular prepaid mobile telephone number.

FIG. 3 schematically shows the configuration of a prepaid mobile telephone service accumulation system using compensation acquired from a web server, according to the second embodiment of the present invention. In FIG. 3, an instant web server 300 which manages a home page 304 and a member DB 302 and provides a deposit money accumulation service, is connected to a different service provider node (web server) via the Internet or Intranet. Though not shown in FIG. 3, it is apparent that the different service provider node 310 also manages its home page and its client DB.

The service provider node 310 (hereinafter, referred to as an indirect enterprise) according to the second embodiment of the present invention is a general term for a web server which directly or indirectly provides a deposit money accumulation service to its registered users but cannot directly establish a communication channel for requesting an increase in the balance of deposit money to the PPS server 350 which manages the prepaid mobile telephone number database 352. Thus, if all existing web

servers (providers for providing events, which grant a predetermined compensation in return for participation, to its members to achieve Internet business) directly or indirectly provide a deposit mon y accumulation service, they can be the indirect enterprise 310 according to the second embodiment of the present invention. Here, the term "direct" denotes that the members of the indirect enterprise 310 can directly make a request to the indirect enterprise 310 for a deposit money accumulation service (as a matter of fact. the indirect enterprise 310 do not directly make a request to a prepaid mobile telephone server for the deposit money accumulation service, but indirectly make a request to the instant web server for the deposit money accumulation service). The term "indirect" denotes that the members of the indirect enterprise 310 can request that the service point of the indirect enterprise is converted into the service point of the instant web server 300.

In order to directly or indirectly provide a deposit money accumulation service to members, the indirect enterprise 310 has a function of indirectly requesting that the instant web server 300 relay a request for increasing the balance of deposit money for a particular prepaid mobile telephone number to the PPS server 350 (hereinafter, referred to as a relay request), or a function of requesting the instant web server 300 to convert the service point of a user registered with the indirect enterprise 310 into the service point of the instant web server 300 (hereinafter, referred to as a service point conversion service). It is preferable that the indirect enterprise 310 has both of the two above-described functions. However, the indirect enterprise 310 must have at least one of the two functions. Therefore, users registered for the indirect enterprise 310 can demand the deposit money accumulation service or the service point conversion service of the indirect enterprise 310. By virtue of the service point conversion service provided by the indirect enterprise 310, the members of the instant web server 300 can use their service points acquired from other web servers for the deposit money accumulation service.

In order to support the indirect enterprise 310, the instant web server 300 has a function of receiving the relay request from the indirect enterprise

310 and relaying the request to the PPS server 350, or a function of receiving a request for the service point conversion service from the indirect enterprise 310 and increasing the service points of a user registered with the instant web server 300 at the request for the service point conversion service. It is preferable that the instant web server 300 has both the relay request processing function and the service point conversion service request processing function, in order to support the indirect enterprise 310. However, the instant web server 300 must have at least one of the two functions.

FIG. 3 shows a single indirect enterprise 310, but it is apparent that a plurality of indirect enterprises can be connected to the instant web server 300 via the Internet or Intranet.

Various modifications to the first embodiment will now be described. FIGS. 4A through 4C schematically show the configuration of a prepaid mobile telephone service accumulation system using compensation acquired from a web server, according to modifications to the first embodiment of the present invention.

FIG. 4A refers to a case where the instant web server 400 operates together with a plurality of PPS servers 450a and 450b on the same mobile communication enterprise network, and FIG. 4B refers to a case where the instant web server 400 interworks with PPS servers 450c and 450d on a plurality of mobile communication enterprise networks. In FIG. 4A, each of the PPS servers 450a and 450b manages only prepaid mobile telephone numbers within a predetermined range using its prepaid mobile telephone number DB. In FIG. 4B, each of the PPS servers 450c and 450d manages only the prepaid mobile telephone numbers having its own mobile communication enterprise ID code. The web server 400 in FIGS. 4A and 4B can select an appropriate PPS server according to the prepaid mobile telephone number in the deposit money accumulation service request, and then request the selected PPS server to increase the balance of deposit money.

Also, it is apparent that an embodiment of the present invention having a system configuration in which FIGS. 4A and 4B are combined is

possible.

FIG. 4C shows the configuration of a system including a brokerage server 420 for intermediating between the web server 400 and a PPS server 450e. The brokerage server 420 performs a brokerage function of receiving a deposit balance increasing request from the web server 400 via a communication network (which denotes a packet data network) and transferring the received request to the PPS server 450e via the communication network. That is, the deposit balance increase request from the web server 400 is transferred to the PPS server 450e via the brokerage server 420. Here, the PPS server 450e can be designated by the web server 400, or the brokerage server 420 can route a path toward an appropriate PPS server with reference to the prepaid mobile telephone number in the deposit balance increase request.

A node for managing a mobile telephone client DB 422 can perform the function of the brokerage server 420.

Embodiments of the present invention can also be realized in a configuration in which FIGS. 4A and 4C are combined, in a configuration in which FIGS. 4B and 4C are combined, and in a configuration in which FIGS. 4A, 4B and 4C are combined.

Up to now, modifications to the first embodiment have been described. The second embodiment can be modified as in the first embodiment. FIG. 4D shows one of various modifications to the second embodiment. In FIG. 4D, indirect enterprises 410a and 410b are combined with the web server 400 via a communication network. and a brokerage server 420 intermediates between the web server 400 and the PPS servers 450f and 450g. One of ordinary skill in the art to which the present invention pertains can understand various system configurations in which the second embodiment is combined with FIGS. 4A through 4C.

Up to now, prepaid mobile telephone service fare accumulation systems according to embodiments of the present invention have been described. A method of accumulating prepaid mobile telephone service fare using compensation acquired from a web server in a prepaid mobile telephone service fare accumulation system according to an embodiment

of the pr sent invention, will now be described.

FIG. 5A is a flow chart for outlining a method of accumulating prepaid mobile telephone service fare using compensation acquired from a web server, according to an embodiment of the present invention. First, an Internet user connects to the home page of a web server which provides a deposit money accumulation service, via the Internet, in step 500.

Next, user authentication is performed, in step 510. That is, the identification ID and password of a user are checked. A deposit money accumulation service in an embodiment of the present invention is allowed for only users registered in an instant web server (that is, members). If an unregistered user wants to participate in events provided by the instant web server and use the deposition money accumulation service, he or she is induced to undergo a procedure of registering as a member. FIG. 5B is a flowchart for outlining a member registration procedure in a web server according to an embodiment of the present invention.

In order to register as a member, a user specifies a user ID and sets a password according to a predetermined format provided by the instant web server, in step 512. Preferably, the instant web server requires a user to set a prepaid mobile telephone number for a deposit money accumulation service upon member registration. However, it is more preferable that a method of setting the prepaid mobile telephone number of a member afterward (for example, at the point of time of the first deposit accumulation service request) is also supported. As described above, the number of a prepaid mobile telephone card can be set as a prepaid mobile telephone number. Also, a prepaid mobile telephone number, which is basically used for a deposit accumulation service, is arbitrarily designated by a user, so that redundant prepaid mobile telephone numbers may be designated.

Thereafter, the instant web server stores the input information in a subscriber DB, in step 514. That is, a new entry is allocated in the subscriber DB, and the user information is recorded. Table 1 shows an example of the entry structure of a user DB of the instant web server.

Member ID	Cyber money reserve	prepaid mobile telephone number	other information

Here, the member ID denotes ID information unique to each member, and the cyber money reserve denotes the sum of cyber money acquired by event participation of members. The cyber money reserve increases when a member participates in an event, and decreases when a member uses a deposit accumulation service, that is, when a member converts his or her cyber money into deposit money. The prepaid mobile telephone number denotes a prepaid mobile telephone number (including a prepaid mobile telephone card number) which a member is to usually use for the deposit accumulation service.

Then, preferably, when a prepaid mobile telephone number has been designated during user registration, steps 520 through 524 of registering the designated prepaid mobile telephone number through the interworking with a PPS server are performed.

In order to register the designated prepaid mobile telephone number in the PPS server, first, a communication channel with the PPS server is established, in step 520. Here, it is preferable that the communication channel is a connection-oriented communication channel. When a connection-oriented communication channel is used, if a channel has already been set up, a separate channel does not need to be established.

In a state where a connection-oriented communication channel with the PPS server is established, the instant web server requests the PPS server to register a prepaid mobile telephone number for a new user in a prepaid mobile telephone number DB, in step 522. In step 522, the web server according to an embodiment of the present invention can request the PPS server to set up a predetermined initial amount of deposit money for an incentive for a new subscriber. Also, the instant web server can request the PPS server to apply a special telephone call rate to the prepaid mobile telephone numbers registered by virtue of the instant web server.

Then, the instant web server receives the results of registration of the prepaid mobile telephone number in the PPS s rver, in step 524.

The prepaid mobile telephone number registration process in steps 520 through 524 need not necessarily be performed during member registration in the instant web server, and can be performed at an appropriate point in time as necessary. However, the steps 520 through 524 must be performed before the PPS server is first requested to increase the balance of deposit money.

As the last procedure for member registration, the instant web server outputs the results of registration to the user, in step 528.

When the member registration or user authentication are successfully completed, a subscriber can acquire cyber money or service points by participating in events provided by the instant web server, in step 530. That is, a process for increasing a cyber money reserve is performed.

Then, in a state where some cyber points are accumulated, the instant web server receives a user's request to accumulate or convert his or her reserved service points into a prepaid mobile telephone deposit money for a particular prepaid mobile telephone number, in step 540. As described above, the subscriber identification number of a mobile communication terminal or the number of a prepaid mobile telephone card can be designated as the particular prepaid mobile telephone number.

Subscribers can demand to convert the entire amount of cyber money reserve into deposit money, or to convert some amount of cyber money reserve into deposit money. Also, subscribers can request a deposit accumulation service by designating a separate prepaid mobile telephone number other than the fundamental prepaid mobile telephone number during registration.

Preferably, service points that can be used for the deposit accumulation service include not only service points acquired by participation in events provided by the instant web server but also service points acquired from an indirect enterprise, since still another embodiment of the present invention provides a method of converting the service points acquired from an indirect enterprise into the service points of the instant web server.

More preferably, the present invention can be extended so that

various service points acquired not only from online events but also from economic activities in real life are converted into the service points of the instant web server to use the deposit accumulation service. Also, the instant web server can use the reserved service points in various fields as well as the prepaid mobile telephone deposit money.

FIG. 5A sequentially shows the step 530 in which a member acquires service points, and the step 540 of requesting a deposit accumulation service, in order to represent that, if a member has reserved service points, he or she can use the deposit accumulation service using the accumulated service points. It can be understood by one of ordinary skill in the art to which the present invention pertains that the step 530 of acquiring service points and the step 540 of using a deposit accumulation service can be separately performed. That is, subscribers can conclude connection to the instant web server without using a deposit accumulation service after acquiring cyber money by event participation, or can use a deposit accumulation service without participation in events after subscribers connect to the instant web server, provided that a cyber money reserve exists.

Hereinafter, the processing of a deposit accumulation service will be described. First, a process for converting service points provided from the instant web server in return for event participation into prepaid mobile telephone deposit money is optionally performed, in step 550. That is, the service points provided from the instant web server are converted in a predetermined way to determine an amount of an increase in deposit money for a deposit accumulation service. Preferably, the service points from the instant web server are managed so that they correspond to units of deposit money on a one-to-one basis.

Next, the instant web server communicates with a PPS server to request an increase in the balance of deposit money, in step 560. FIG. 5C is a flowchart for outlining the communication (interworking) between a web server and a PPS server to request an increase in the balance of deposit money, according to an embodiment of the present invention.

Preferably, a connection-oriented communication channel is used

during the communication with the PPS server to request an increase in the balance of deposit money. In order to achieve this, the existence or non-existence of a communication channel with the PPS server is checked, and if no communication channels are established, a new connection-oriented communication channel is set up, in step 562.

It is preferable that, if there are a plurality of PPS servers for managing only prepaid mobile telephone numbers within a certain range in a prepaid mobile telephone number DB, the instant web server has a function of selecting a PPS server corresponding to the prepaid mobile telephone number designated in step 540. Here, the plurality of PPS servers can exist on the same mobile communication enterprise network or on a plurality of mobile communication enterprise networks.

If there is a brokerage server for brokering a deposit balance increasing request to a PPS server, a communication channel with the brokerage server must be primarily set up. As described above, a PPS server can be designated by the instant web server, and the brokerage server can route a path to a PPS server corresponding to the prepaid mobile telephone number at the deposit balance increasing request. Also, as described above, a node for managing a client DB for all mobile telephone service clients can act as a brokerage server.

In a state where a communication channel with the selected PPS server is established, the instant web server transmits a request to increase the balance of deposit money for the prepaid mobile telephone number designated in step 540 to the selected PPS server via a network, in step 564. It is apparent that the amount of an increase in deposit money optionally converted in step 550 must be transmitted in addition to the corresponding prepaid mobile telephone number. As described above, the communication network is a packet data network such as the Internet or Intranet.

Then, the instant web server receives the results of processing of the deposit balance increasing request in the PPS server, in step 566. Here, it is preferable that the PPS server feeds back the current balance of the deposit money for the corresponding prepaid mobile telephone number.

After the communication with the selected PPS server to make a deposit balance increasing request is successfully completed, the instant web server reduces the cyber money reserve of a corresponding user, in step 570. The results of processing of the deposit accumulation service are output to the corresponding user, in step 580. Here, it is preferable that the instant web server provides current deposit information received from the PPS server and current cyber money reserve information to the corresponding user.

Up to now, a process for providing a deposit accumulation service directly from the instant web server has been described. Hereinafter, a deposit accumulation service provided via an indirect enterprise will be described with reference to FIG. 6. FIG. 6 is a flowchart for outlining a method of accumulating prepaid mobile telephone service fare using compensation acquired from an indirect enterprise, according to an embodiment of the present invention.

As described above, indirect enterprises can make a relay request or a service point conversion service request to the instant web server to provide a deposit accumulation service to their members, but cannot set up a communication channel with a PPS server to make a deposit balance increasing request.

First, an Internet user connects to the home page of an indirect enterprise via the Internet, in step 600. Next, the indirect enterprise performs user authentication, in step 610, since it is preferable that indirect enterprises provide their services to only their members.

Then, members of the indirect enterprise acquire the service points of the indirect enterprise by participating in various events provided by the indirect enterprise, in step 620. Here, the service points of the indirect enterprise can include various service points acquired from economic activities in real life.

Thereafter, a member of the indirect enterprise requests a deposit accumulation service or a service point conversion service with respect to service points acquired from the indirect enterprise, in step 630. Here, in a deposit accumulation service, member's service points are accumulated

on prepaid mobil telephone deposit money for a particular prepaid mobile telephone number. In a service point conversion service, member's service points are converted into the service points of a member of a different web server which can set up a communication channel with a PPS server which manages a prepaid mobile telephone number DB in order to make a request for increasing the balance of prepaid mobile telephone deposit money. Undoubtedly, the card number of a prepaid mobile telephone card can be designated as a prepaid mobile telephone number in the deposit accumulation service. Preferably, the indirect enterprise supports both the deposit accumulation service request and the service point conversion service request. However, the indirect enterprise can support only one of the two services in some cases.

FIG. 6 sequentially shows the step 620 in which a member of an indirect enterprise acquires service points and the step 630 of requesting the deposit accumulation service or service point conversion service, which demonstrates that the deposit accumulation service or service point conversion service can be used in a state where a service point of a predetermined amount of money is reserved.

Then, conversion of the service points of the indirect enterprise into deposit money (in the case of a deposit accumulation service) or into the service points of the instant web server (in the case of a service point conversion service) is optionally performed. in step 640. This conversion step 640 can be performed by the indirect enterprise or by the instant web server. Undoubtedly, when the service points of the indirect enterprise are converted into deposit money in a one-to-one correspondence or when the service points of the indirect enterprise are converted into the service points of the instant web server in a one-to-one correspondence, a separate conversion process is not required.

It is preferable that the communication between an indirect enterprise and a web server is made via a connection-oriented communication channel. Accordingly, the indirect enterprise checks if there is a communication channel with the instant web server, and if there are no communication channels, a new conn ction-oriented communication

channel is set up, in step 650.

In a state where a communication channel with the instant web server is established, the indirect enterprise requests the web server to relay a deposit accumulation service or to provide a service point conversion service via the communication network, in step 660. The indirect enterprise receives the results of the request, in step 670.

According to the results in step 670, the indirect enterprise changes the information on the service points of a user, in step 680, and outputs the results of service processing to the user of the indirect enterprise, in step 690.

Up to now, a service processing procedure in an indirect enterprise has been described. Hereinafter, a service processing procedure in a web server for supporting an indirect enterprise will be described referring to FIG. 7. FIG. 7 is a flowchart for outlining a method of processing a service request from an indirect enterprise in the instant web server, according to an embodiment of the present invention.

In order to support an indirect enterprise, the instant web server manages an indirect enterprise DB. An example of each entry in the indirect enterprise DB is shown in Table 2.

[Table 2]

Indirect enterprise ID	Password	Cyber money	other information

Here, the indirect enterprise ID denotes a unique ID granted to each indirect enterprise, and the password is used to perform indirect enterprise authentication. The cyber money field can be managed in two ways. One is a method in which an indirect enterprise deposits a predetermined amount of money, and reduces the deposit whenever the indirect enterprise requests a service to the instant web server. Hereinafter, this method is referred to as the first method. In the first method, the indirect enterprise can make a service request to the instant web server within the limit of a remaining amount of cyber money. The other way is a method in which an amount of cyber money increases whenever the indirect enterprise requests a service to the instant web server. Hereinafter, this method is

referred to as the second method. In the second method, cyber money is reduced by a periodic settlement process with the instant web server.

First, the instant web server waits until a connection-oriented communication channel with an indirect enterprise is established, and a communication channel is set up, in step 700. Then, indirect enterprise authentication is performed, in step 702. That is, the ID and password of an indirect enterprise are checked, in step 702.

In a state where a communication channel is established, the web server receives a data packet for a relay request or a service point conversion service request from an indirect enterprise, in step 710. Here, it is preferable that the relay request or service point conversion service request includes the ID of a user of the instant web server, since it is preferable that only members of the instant web server can use a deposit accumulation service through an indirect enterprise. The steps 700 and 702 of setting up a communication channel and performing indirect enterprise authentication are performed only when an initial communication channel is established. If a communication channel has been already established, the step 710 of receiving a service request can be directly performed without undergoing the steps 700 and 702.

Thereafter, in the first method, a process for checking the balance of cyber money of the indirect enterprise in the indirect enterprise DB, to determine whether a service request is processed, is optionally performed.

As described above, if the indirect enterprise has not performed the service point conversion process, the instant web server can optionally perform the service point conversion process.

Processing of a service request received from the indirect enterprise will be continuously described. If a data packet received in step 710 refers not to a relay request but to a service point conversion service request, the instant web server changes (increases) the cyber money reserve of a user in the subscriber DB at the service point conversion service request, in steps 720 and 730. If a relay request is made, the communication with a PPS server is performed, in steps 720 and 740. Step 740 is the same as the process shown in FIG. 5C except that this step refers to a relay request.

That is, the steps 562, 564 and 566 can be equally applied to the step 740. Also, the card number of a prepaid mobile telephone card can be designated as the prepaid mobile telephone number at the relay request.

After the steps 730 and 740 are successfully completed, the information on the cyber money of an indirect enterprise is changed, in step 750. That is, in the first method, the cyber money is reduced, and, in the second method, the cyber money is increased. The results of service processing are transmitted to the indirect enterprise, in step 760.

Up to now, procedures for processing a deposit accumulation service in the instant web server and in an indirect enterprise have been described. Hereinafter, a service processing procedure in a PPS server will be described referring to FIG. 8. FIG. 8 is a flowchart for outlining a method of processing a service request from a web server in a PPS server, according to an embodiment of the present invention.

First, a PPS server waits until a connection-oriented communication channel with the instant web server (hereinafter, referred to as a main enterprise to distinguish from an indirect enterprise) is established, and a communication channel is set up, in step 800. Next, main enterprise authentication is performed, in step 802. The steps 800 and 802 are performed when an initial communication channel is set up.

Undoubtedly, it is preferable that the PPS server manages a main enterprise DB including the ID and password of a main enterprise, in order to perform main enterprise authentication.

If there is a brokerage server for brokering a PPS server and a main enterpriser, the PPS server will set up a communication channel with the brokerage server. As described above, the function of a brokerage server can also be performed by a node which manages a client DB for all mobile telephone service clients.

Next, the PPS server receives a data packet for a deposit increasing request or relay request from the main enterprise, in step 810. Since an indirect enterprise cannot directly request a PPS server to increase deposit money, the PPS server receives a data packet referring to the deposit increasing request only from a main enterprise. The PPS server does not

need to distinguish a relay request of the indirect enterprise from the deposit increasing request of the main enterprise.

If subscriber generation is requ sted, that is, if registration of a new prepaid mobile telephone number is requested, an entry for a subscriber of a prepaid mobile telephone number is generated and stored in a prepaid mobile telephone number DB, in steps 820 and 830. If a request to set a predetermined amount of initial deposit money is included in incentives for new subscribers from the main enterpriser, it will be preferable that the initial deposit money is also set.

Of course, a request of registration of a prepaid mobile telephone number can be made using the subscriber identification number of a mobile communication terminal or the card number of a prepaid mobile telephone card. If a new registration request with respect to an already-registered prepaid mobile telephone number is received, it is preferable that it is processed not as an error but as a second duplicate designation.

If an increase in the balance of deposit money is requested, the balance of deposit money for a prepaid mobile telephone number is increased, in step 840. In some cases, a main enterprise and an indirect enterprise do not convert service points into the deposit money, but a PPS server may finally perform this conversion operation.

Finally, the results of service processing with respect to the subscriber generation request or the deposit balance increasing request are sent to the main enterprise, in step 850. As described above, it is preferable that the PSS server feeds back the current amount of the deposit money for a prepaid mobile telephone number.

The embodiments of the present invention can be written in a program that can be executed in a computer system. Also, this program can be read from a recording medium and executed by a general digital computer system. The recording medium may be a magnetic storage medium (for example, ROM, floppy discs, hard discs, etc.), an optical reading medium (for example, CD-ROM, DVD, etc.), or a carrier wave (for example, transmission through the Internet).

Up to now, the present invention has been described by taking

preferred embodiments. It will be understood by those skilled in the art, to which the present invention pertains, that various modifications to the present invention may be made without departing from the essential characteristics of the present invention. Thus, the described embodiments must be considered not from a standpoint of restriction but from a standpoint of explanation. The true technical protection scope of the present invention must be determined not by the above description but by the attached claims, and all differences within the equivalent range must be interpreted to be included in the present invention.

Industrial Applicability

According to the present invention, compensation acquired by Internet users from a web server on the Internet can be promptly realized in the form of the free use of a mobile telephone generalized in the information society, through the co-operation between the web server and a prepaid mobile telephone service system. In particular, users can selectively use a free mobile telephone service by applying the present invention to the feature code using method or the particular number connection method.

Also, existing Internet enterprises can easily provide a free mobile telephone service to members by operating together with the instant web server. Furthermore, the present invention can operate while maintaining compatibility with conventional prepaid mobile telephone service systems.

What is claimed is:

1. A method of accumulating prepaid mobile telephone service fare using compensation acquired from a web server, the method comprising:

(a) receiving a user's request that prepaid mobile telephone deposit money for a particular prepaid mobile telephone number is accumulated using compensation, acquired by a user registered in the web server on a communication network from the web server by participating in online events including a looking-at- advertisement section which provides a predetermined compensation in return for online participation; and

(b) transmitting a deposit balance increasing request to increase the balance of the prepaid mobile telephone deposit money for a particular prepaid mobile telephone number, to a prepaid service (PPS) server which manages a prepaid mobile telephone number database, via a communication network, in response to the user's request received in step (a).

2. The method of claim 1, wherein the particular prepaid mobile telephone number is the mobile identification number (MIN) of a mobile communication terminal or the card number of a prepaid mobile telephone card.

3. The method of claim 1, before the step (a), further comprising requesting the PPS server to register a prepaid mobile telephone number for a user registered in the web server.

4. The method of claim 1, wherein compensation capable of being used for the user request includes compensation acquired by participating in online events provided from another web server on the communication network.

5. The method of claim 1, wherein a prepaid mobile telephone number other than the prepaid mobile telephone number of a user

registered in the web server can be designated as the particular prepaid telephone number.

6. The method of claim 1, wherein the step (b) comprises converting the compensation into prepaid mobile telephone deposit money in a predetermined way and determining an amount of money for the deposit balance increasing request.

7. The method of claim 1, wherein in the step (b), a PPS server for managing a prepaid mobile telephone number database in which the particular prepaid mobile telephone number has been registered is selected with reference to the particular prepaid mobile telephone number, and the deposit balance increasing request is transmitted to the selected PPS server.

8. The method of claim 1, wherein, in the step (b), the deposit balance increasing request is transmitted to the PPS server via a particular brokerage server on a communication network.

9. The method of claim 8, wherein the particular brokerage server manages a client database for all mobile telephone service clients.

10. A method of accumulating prepaid mobile telephone service fare using compensation acquired from a web server, the method comprising:

(a) receiving from the service provider node an indirect service request that a deposit balance increasing request to accumulate service points, acquired by a user registered in a service provider node on a communication network by using services provided by the service provider node, into prepaid mobile telephone deposit money for a particular prepaid mobile telephone number is relayed to a PPS server which manages a prepaid mobile tel phone number database, via a communication network; and

(b) transmitting a deposit balance increasing request for the particular prepaid mobile telephone number, to the PPS server via a communication network, in response to the indirect service request received in step (a).

11. A method of accumulating prepaid mobile telephone service fare using compensation acquired from a web server, the method comprising:

(a) a PPS server, which manages a prepaid mobile telephone number database, receiving a request to increase the balance of prepaid mobile telephone deposit money for a particular prepaid mobile telephone number, from the web server which provides a service for accumulating the service points of a user registered in the web server on a communication network in the form of prepaid mobile telephone deposit money, via the communication network; and

(b) increasing the balance of the prepaid mobile telephone deposit money for the particular prepaid mobile telephone number, in the prepaid mobile telephone number database, at the service request received in step (a).

12. The method of claim 11, wherein the particular prepaid mobile telephone number is the mobile identification number (MIN) of a mobile communication terminal or the card number of a prepaid mobile telephone card.

13. The method of claim 11, before the step (a), further comprising registering a prepaid mobile telephone number for a user registered in the web server, in the prepaid mobile telephone database at a request from the web server to register a prepaid mobile telephone number for a user registered in the web server.

14. The method of claim 11, wherein, in the step (b), the deposit balance increasing request of the web server is received via a particular

brokerage server on a communication network.

15. The method of claim 14, wherein the particular brokerage server manages a client database for all mobile telephone service clients.

16. A system for accumulating prepaid mobile telephone service fare using compensation acquired from a web server, the system comprising:

a web server which provides a prepaid mobile telephone deposit accumulation service for accumulating prepaid mobile telephone deposit money using service points acquired by a registered user participating in online events which provide service points in return for online participation; and

a prepaid mobile telephone server which is connected to the web server via a communication network, and manages a prepaid mobile telephone number database,

wherein the web server makes a request to the PPS server to increase the balance of the prepaid mobile telephone deposit money to provide the prepaid mobile telephone deposit accumulation service, via a communication network, and the PPS server increases the balance of the prepaid mobile telephone deposit money for the particular prepaid mobile telephone number in the prepaid mobile telephone number database. at the request of the web server.

17. The system of claim 16, wherein a plurality of PPS servers exist, the prepaid mobile telephone number database of each of which includes only prepaid mobile telephone numbers within a predetermined range, and the web server selects a PPS server which manages a particular prepaid mobile telephone number and requests that the selected PPS server increase the balance of the prepaid mobile telephone deposit money.

18. The system of claim 16, further comprising a brokerage server

for receiving a request to increase the balance of prepaid mobile telephone deposit money from the web server via a communication network and transmitting the received request to a PPS server which manages a prepaid mobile telephone number database via a communication network.

19. The system of claim 16, further comprising an indirect service provider node which cannot set up a communication channel with the PPS server for requesting the PPS server to increase the balance of prepaid mobile telephone deposit money, wherein the indirect service provider node has at least one of a function of indirectly requesting the web server to relay a request to increase the balance of prepaid mobile telephone deposit money for a particular prepaid mobile telephone number to the PPS server, and a function of making a request for converting service points of the indirect service provider node of a user registered in the indirect service provider node into service points of the web server of a user registered in the web server, and the web server has at least one of a function of receiving the relaying request from the indirect service provider node and relaying the received request to the PPS server and a function of receiving a service point conversion request from the indirect service provider node and increasing the service points of the user registered in the web server at the service point conversion request.

FIG. 1

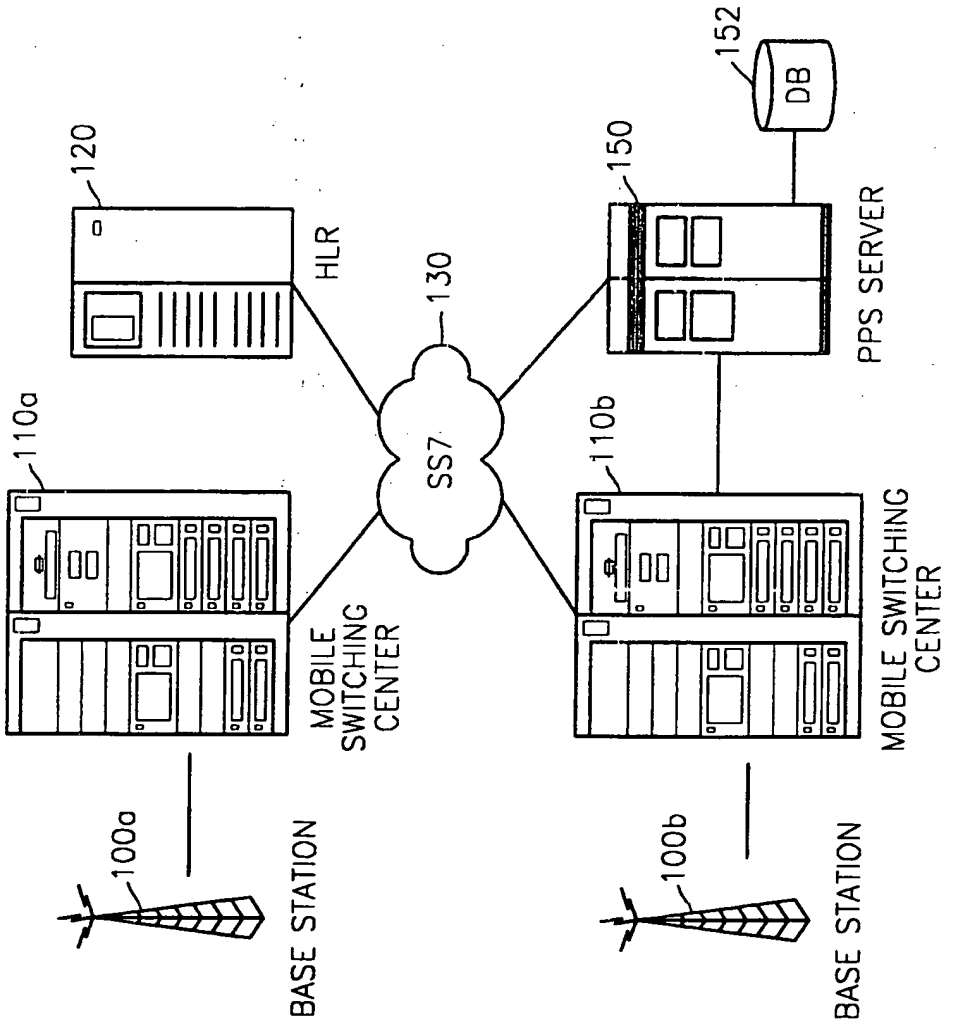

120
HLR
130
SS7
150
PPS SERVER
152
DB
110a
MOBILE SWITCHING CENTER
110b
MOBILE SWITCHING CENTER
100a
BASE STATION
100b
BASE STATION

FIG. 2

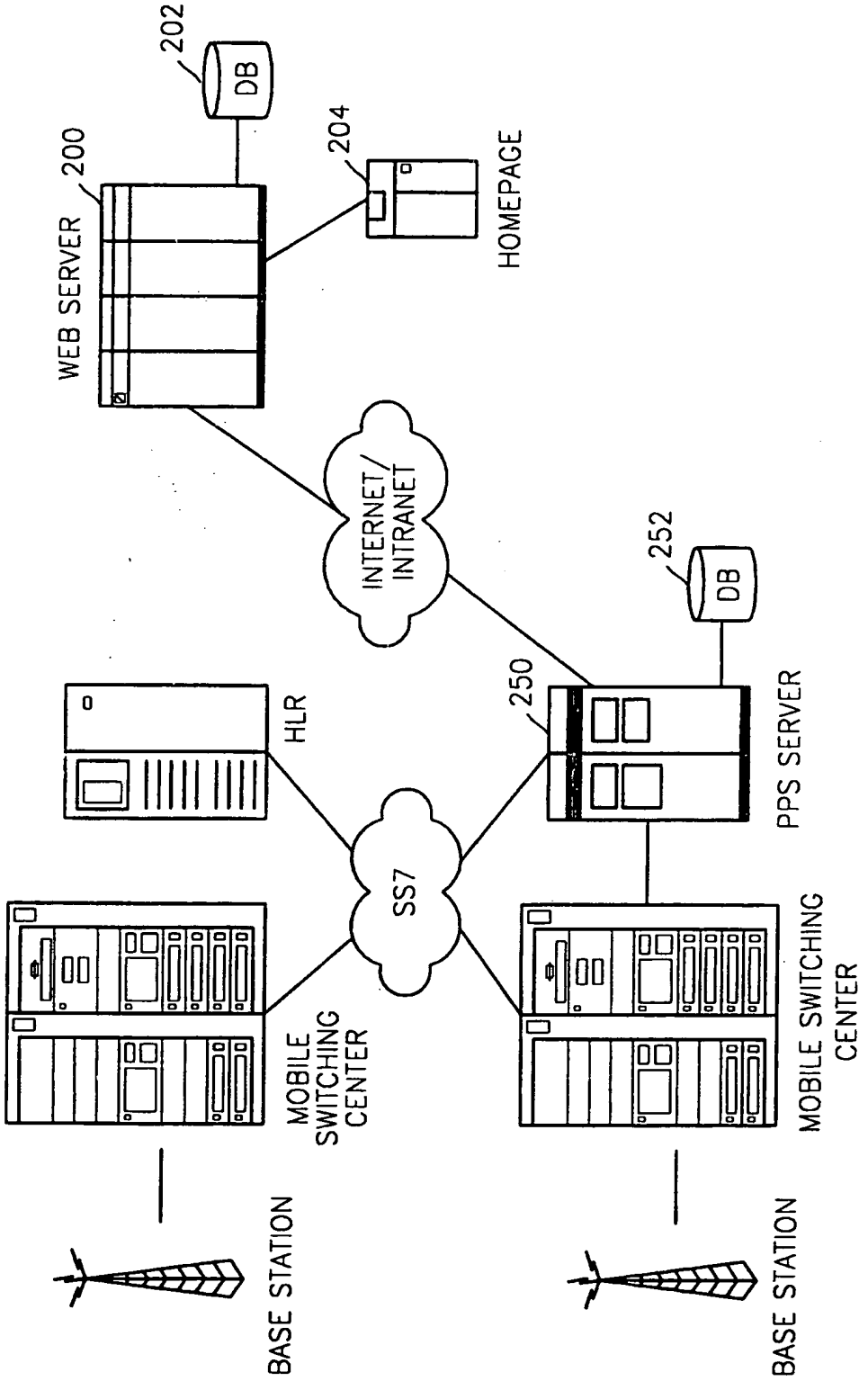

202
DB
204
HOMEPAGE
200
WEB SERVER
INTERNET/
INTRANET
252
DB
250
PPS SERVER
HLR
SS7
MOBILE
SWITCHING
CENTER
MOBILE SWITCHING
CENTER
BASE STATION
BASE STATION

FIG. 3

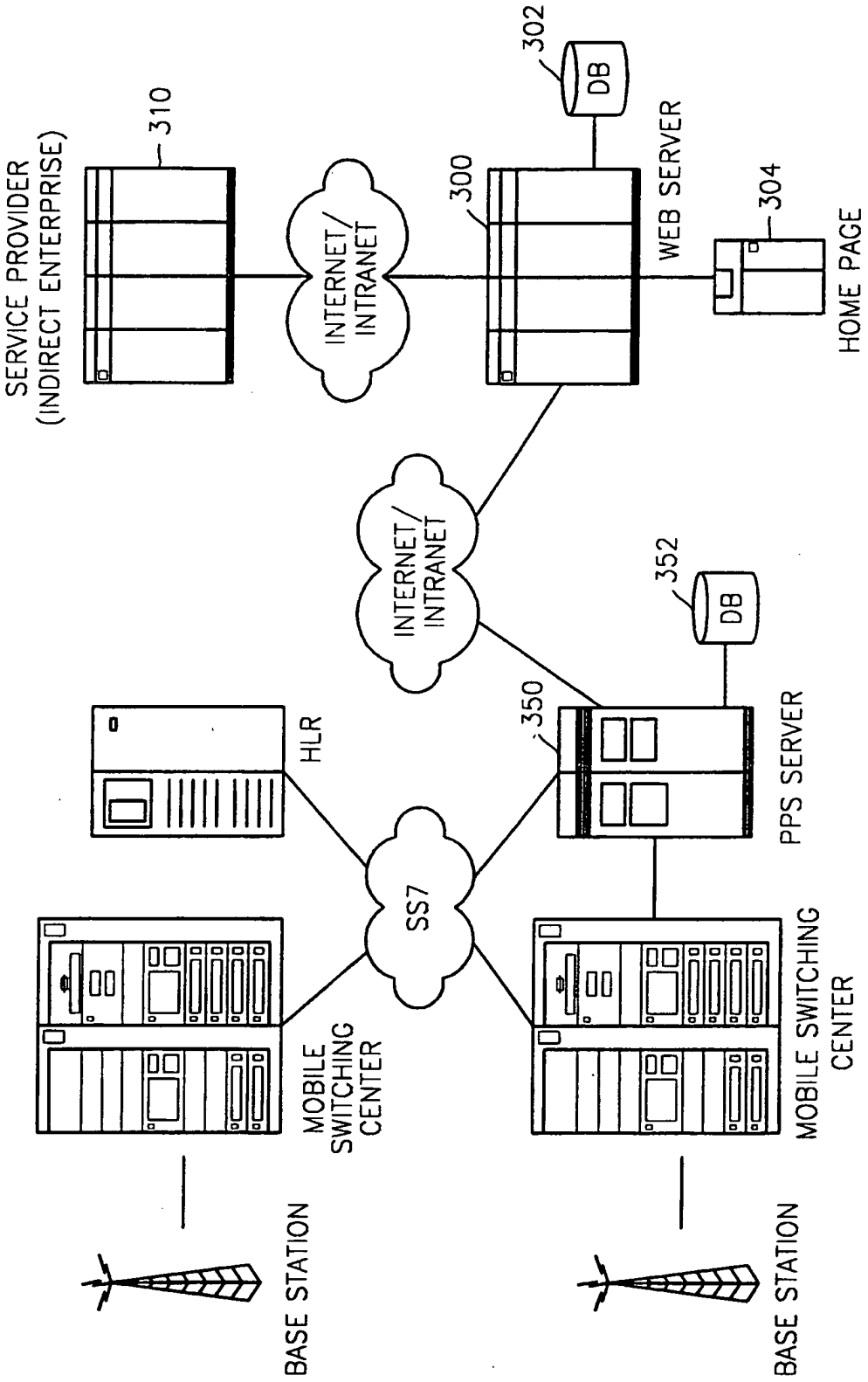

SERVICE PROVIDER
(INDIRECT ENTERPRISE)
310
INTERNET/
INTRANET
300
302
DB
WEB SERVER
304
HOME PAGE
INTERNET/
INTRANET
352
DB
350
PPS SERVER
HLR
SS7
MOBILE
SWITCHING
CENTER
MOBILE SWITCHING
CENTER
BASE STATION
BASE STATION

FIG. 4A

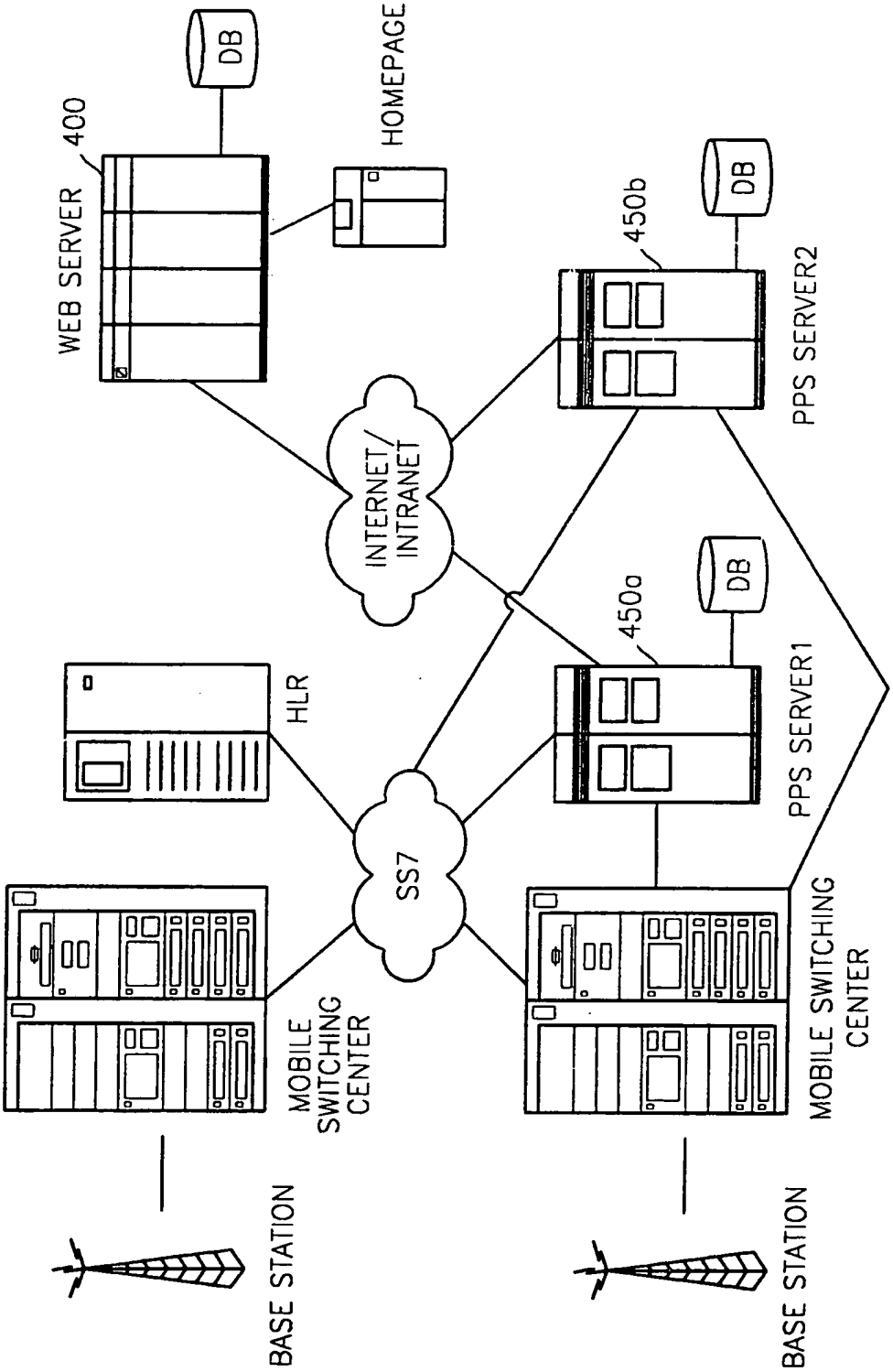

DB
HOMEPAGE
400
WEB SERVER
450b
DB
PPS SERVER2
INTERNET/
INTRANET
450a
DB
PPS SERVER1
HLR
SS7
MOBILE
SWITCHING
CENTER
MOBILE SWITCHING
CENTER
BASE STATION
BASE STATION

FIG. 4B

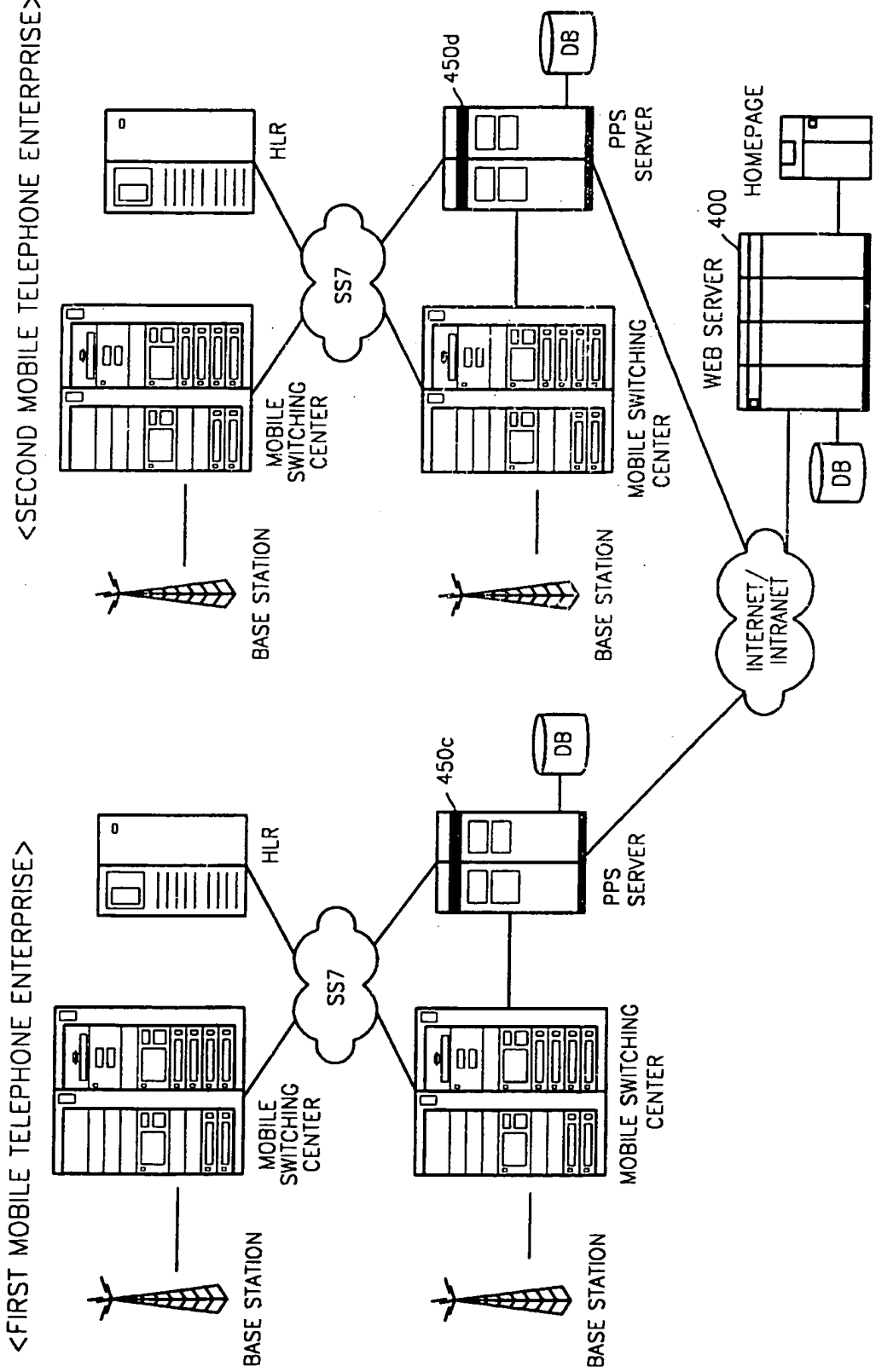

<SECOND MOBILE TELEPHONE ENTERPRISE>
<FIRST MOBILE TELEPHONE ENTERPRISE>
HLR
HLR
SS7
SS7
MOBILE SWITCHING CENTER
MOBILE SWITCHING CENTER
MOBILE SWITCHING CENTER
MOBILE SWITCHING CENTER
BASE STATION
BASE STATION
BASE STATION
BASE STATION
450d
450c
DB
DB
PPS SERVER
PPS SERVER
WEB SERVER
400
HOMEPAGE
DB
INTERNET/ INTRANET

FIG. 4C

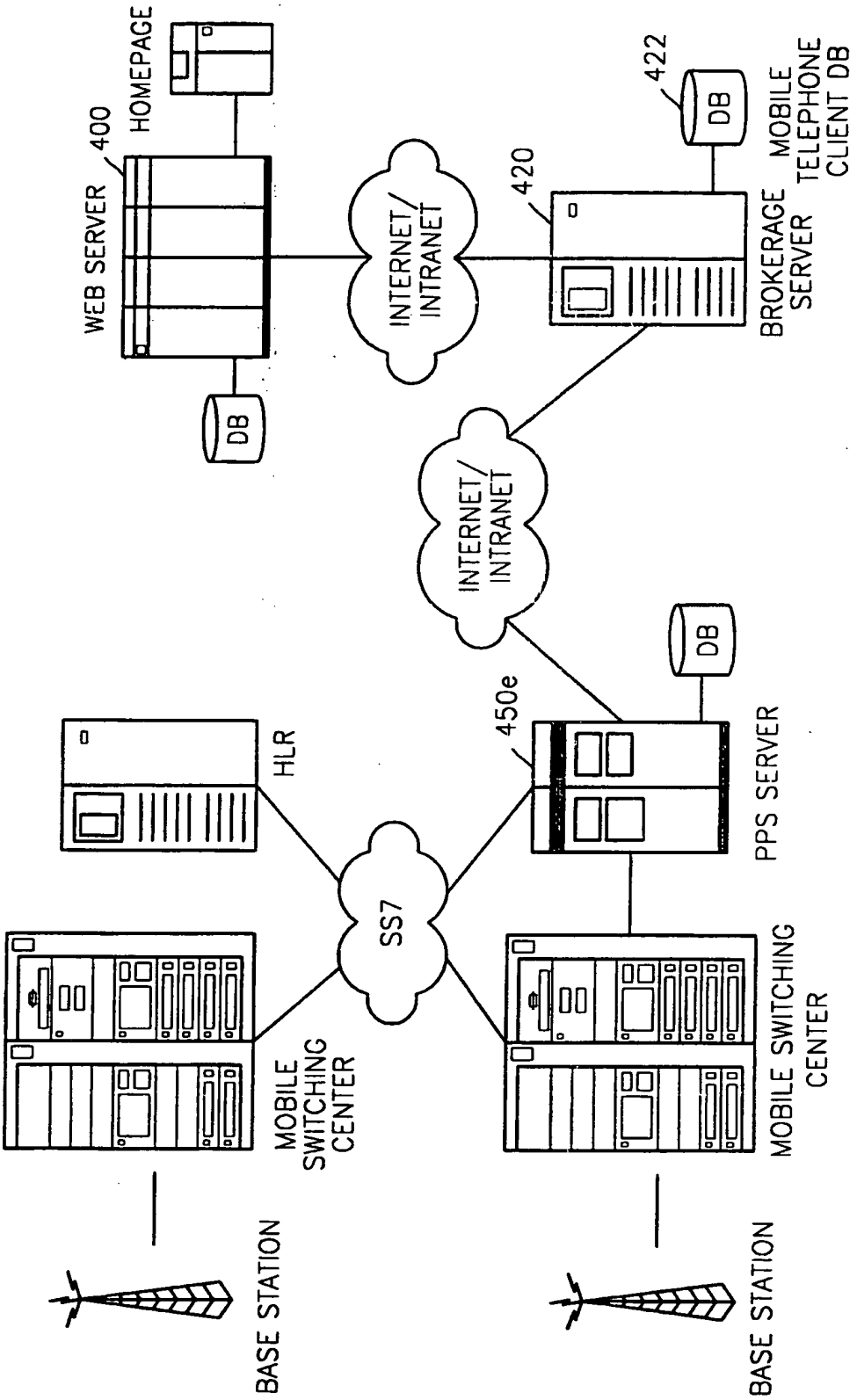

WEB SERVER
400
HOMEPAGE
DB
INTERNET/
INTRANET
420
BROKERAGE
SERVER
422
DB
MOBILE
TELEPHONE
CLIENT DB
INTERNET/
INTRANET
DB
450e
PPS SERVER
HLR
SS7
MOBILE
SWITCHING
CENTER
MOBILE SWITCHING
CENTER
BASE STATION
BASE STATION

FIG. 4D

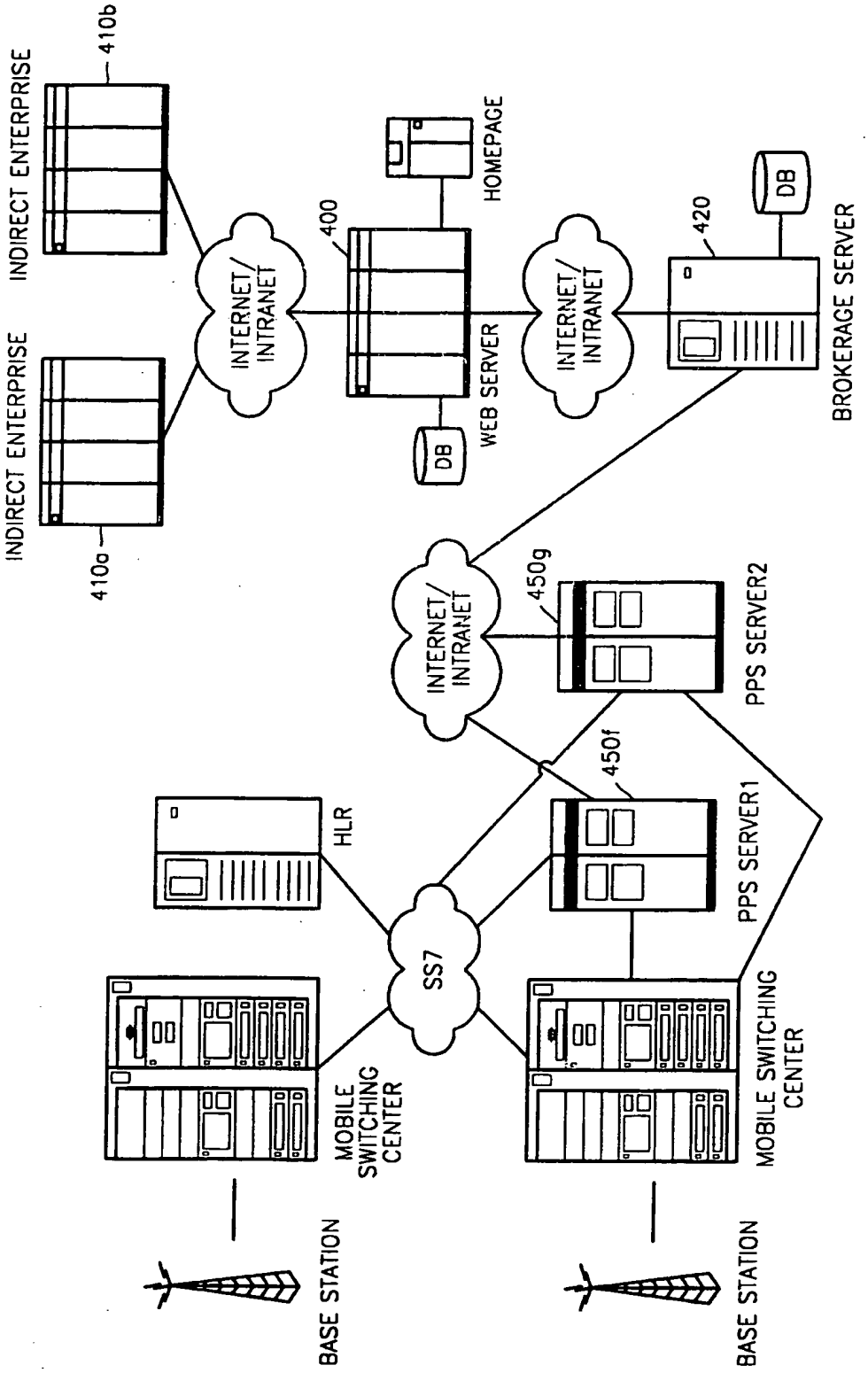

INDIRECT ENTERPRISE
410b
INDIRECT ENTERPRISE
410a
INTERNET/ INTRANET
400
HOMEPAGE
WEB SERVER
DB
INTERNET/ INTRANET
420
DB
BROKERAGE SERVER
INTERNET/ INTRANET
450g
PPS SERVER2
450f
PPS SERVER1
HLR
SS7
MOBILE SWITCHING CENTER
MOBILE SWITCHING CENTER
BASE STATION
BASE STATION

FIG. 5A

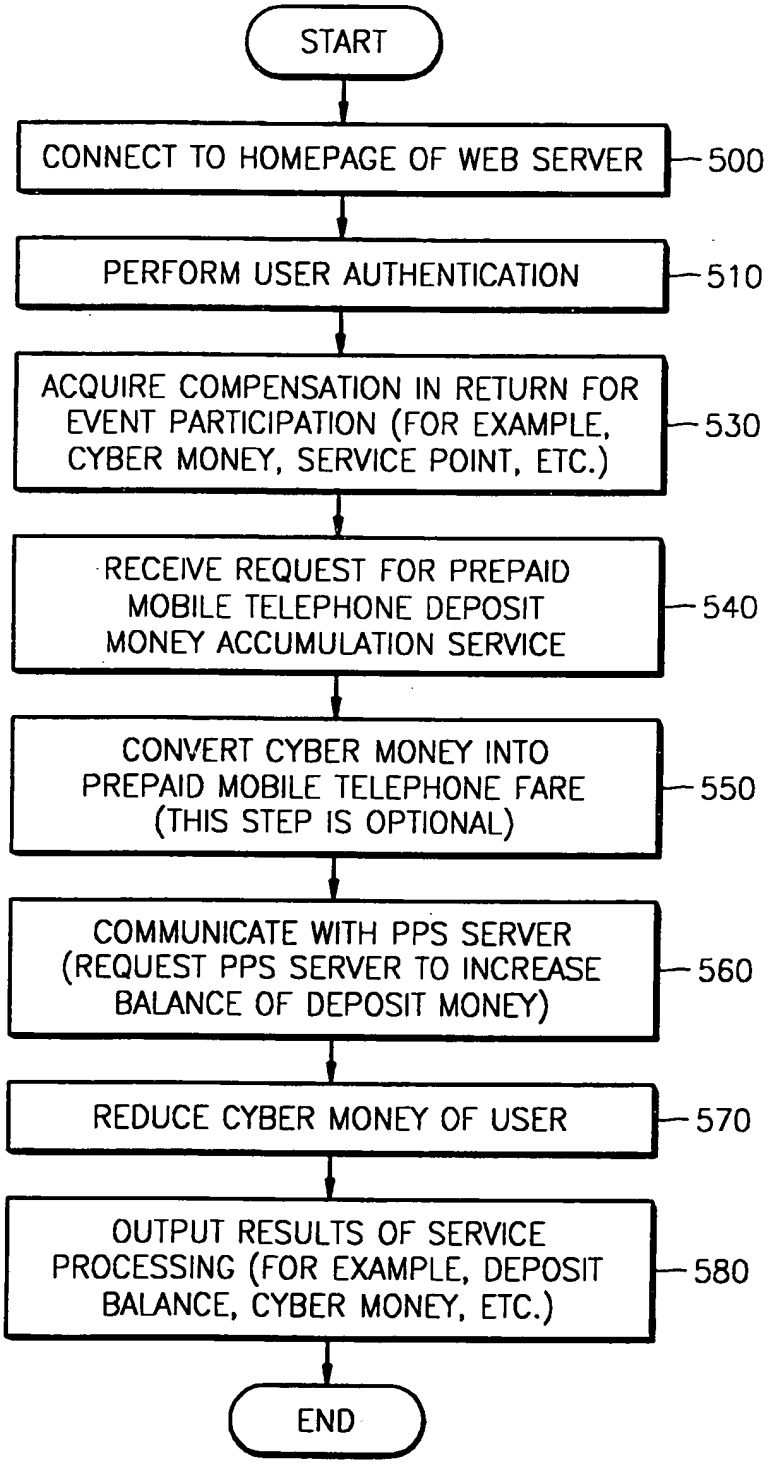

START
CONNECT TO HOMEPAGE OF WEB SERVER
500
PERFORM USER AUTHENTICATION
510
ACQUIRE COMPENSATION IN RETURN FOR EVENT PARTICIPATION (FOR EXAMPLE, CYBER MONEY, SERVICE POINT, ETC.)
530
RECEIVE REQUEST FOR PREPAID MOBILE TELEPHONE DEPOSIT MONEY ACCUMULATION SERVICE
540
CONVERT CYBER MONEY INTO PREPAID MOBILE TELEPHONE FARE (THIS STEP IS OPTIONAL)
550
COMMUNICATE WITH PPS SERVER (REQUEST PPS SERVER TO INCREASE BALANCE OF DEPOSIT MONEY)
560
REDUCE CYBER MONEY OF USER
570
OUTPUT RESULTS OF SERVICE PROCESSING (FOR EXAMPLE, DEPOSIT BALANCE, CYBER MONEY, ETC.)
580
END

FIG. 5B

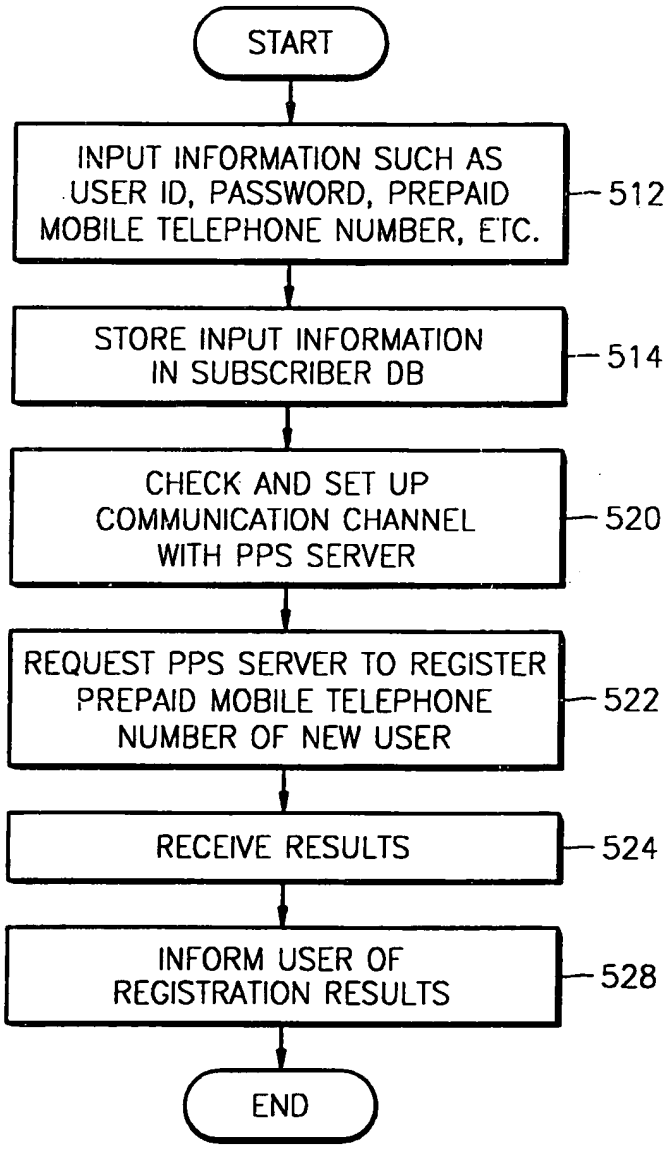

START
INPUT INFORMATION SUCH AS USER ID, PASSWORD, PREPAID MOBILE TELEPHONE NUMBER, ETC.
512
STORE INPUT INFORMATION IN SUBSCRIBER DB
514
CHECK AND SET UP COMMUNICATION CHANNEL WITH PPS SERVER
520
REQUEST PPS SERVER TO REGISTER PREPAID MOBILE TELEPHONE NUMBER OF NEW USER
522
RECEIVE RESULTS
524
INFORM USER OF REGISTRATION RESULTS
528
END

FIG. 5C

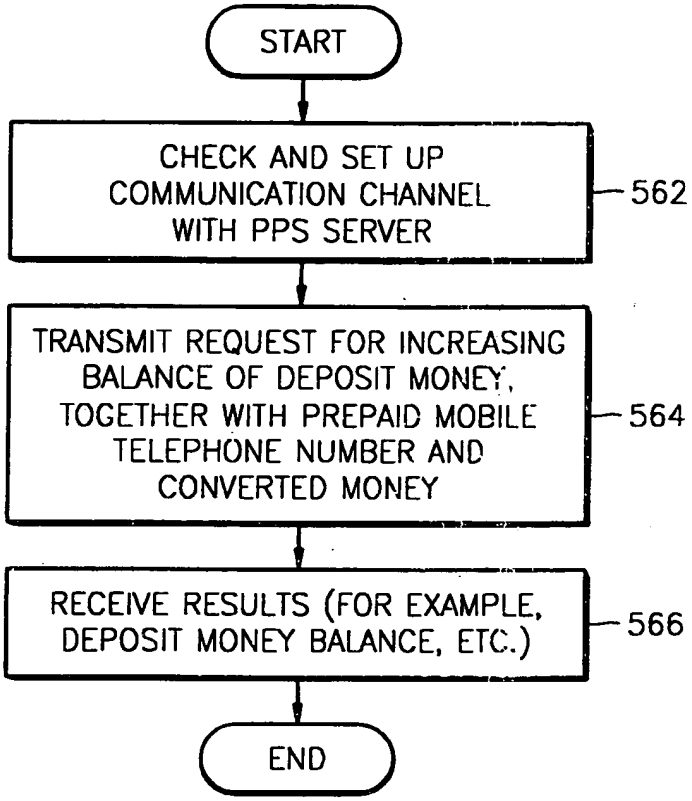

START
CHECK AND SET UP COMMUNICATION CHANNEL WITH PPS SERVER
562
TRANSMIT REQUEST FOR INCREASING BALANCE OF DEPOSIT MONEY, TOGETHER WITH PREPAID MOBILE TELEPHONE NUMBER AND CONVERTED MONEY
564
RECEIVE RESULTS (FOR EXAMPLE, DEPOSIT MONEY BALANCE, ETC.)
566
END

FIG. 6

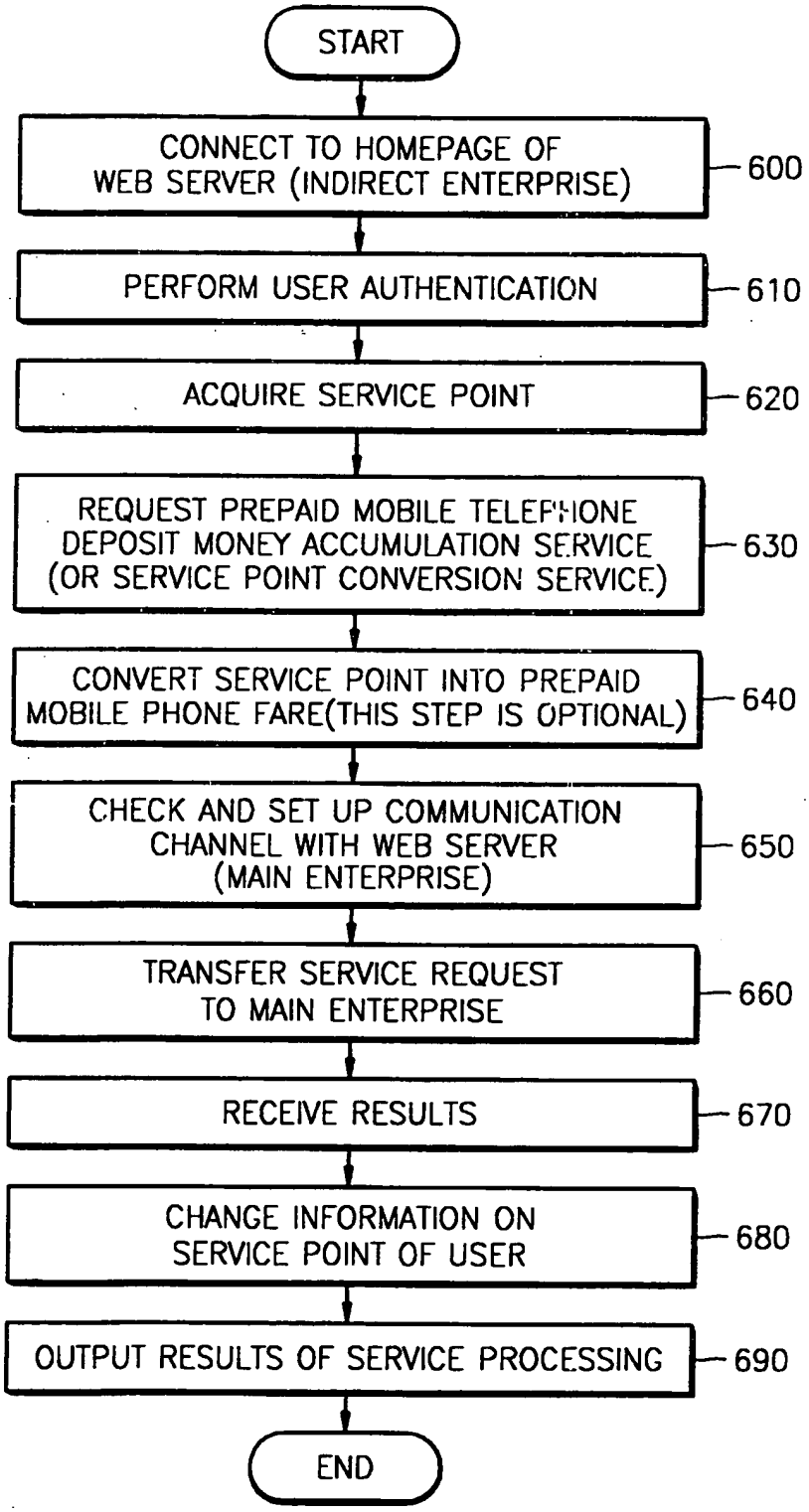

START
CONNECT TO HOMEPAGE OF WEB SERVER (INDIRECT ENTERPRISE)
600
PERFORM USER AUTHENTICATION
610
ACQUIRE SERVICE POINT
620
REQUEST PREPAID MOBILE TELEPHONE DEPOSIT MONEY ACCUMULATION SERVICE (OR SERVICE POINT CONVERSION SERVICE)
630
CONVERT SERVICE POINT INTO PREPAID MOBILE PHONE FARE(THIS STEP IS OPTIONAL)
640
CHECK AND SET UP COMMUNICATION CHANNEL WITH WEB SERVER (MAIN ENTERPRISE)
650
TRANSFER SERVICE REQUEST TO MAIN ENTERPRISE
660
RECEIVE RESULTS
670
CHANGE INFORMATION ON SERVICE POINT OF USER
680
OUTPUT RESULTS OF SERVICE PROCESSING
690
END

FIG. 7

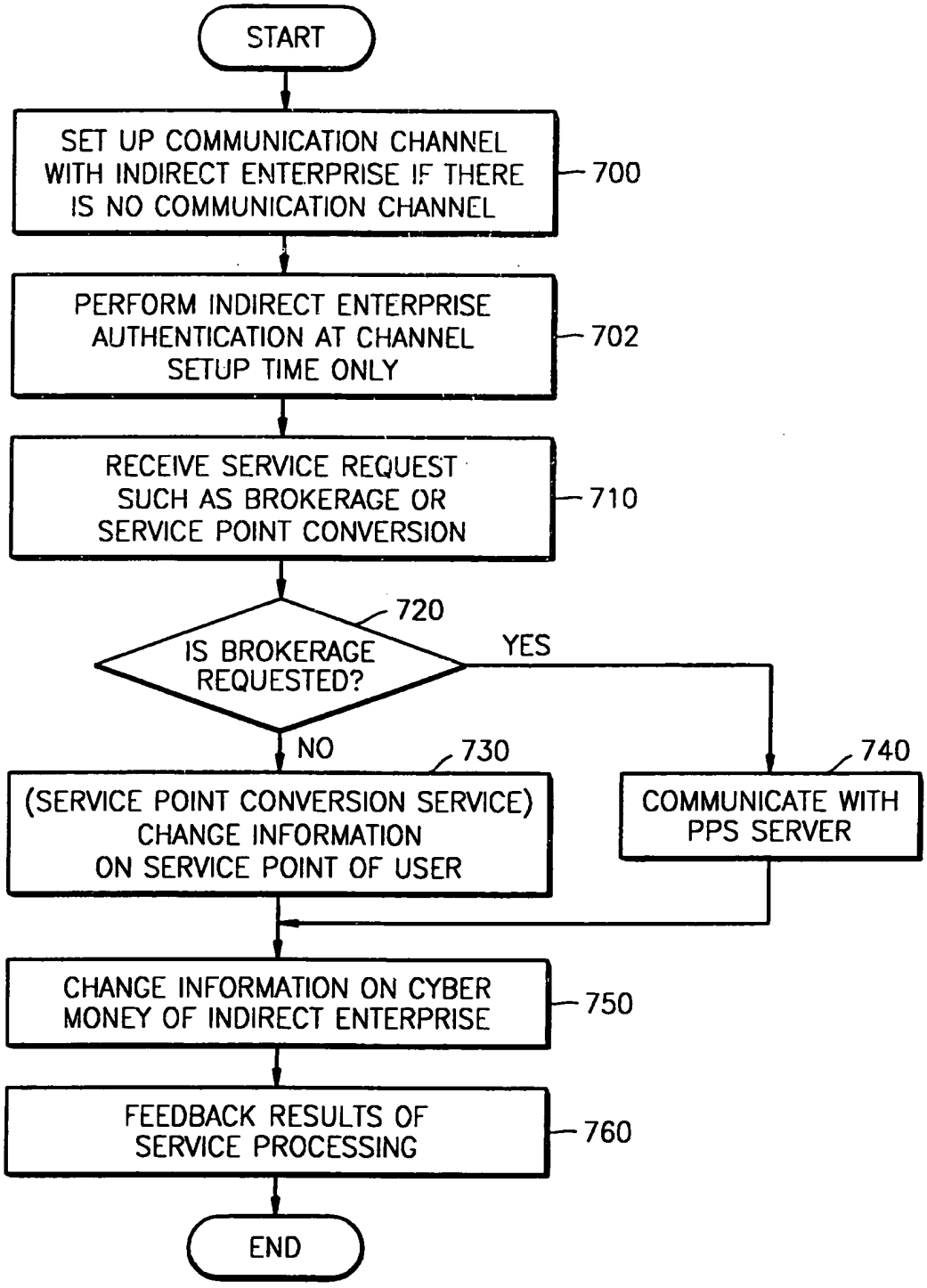
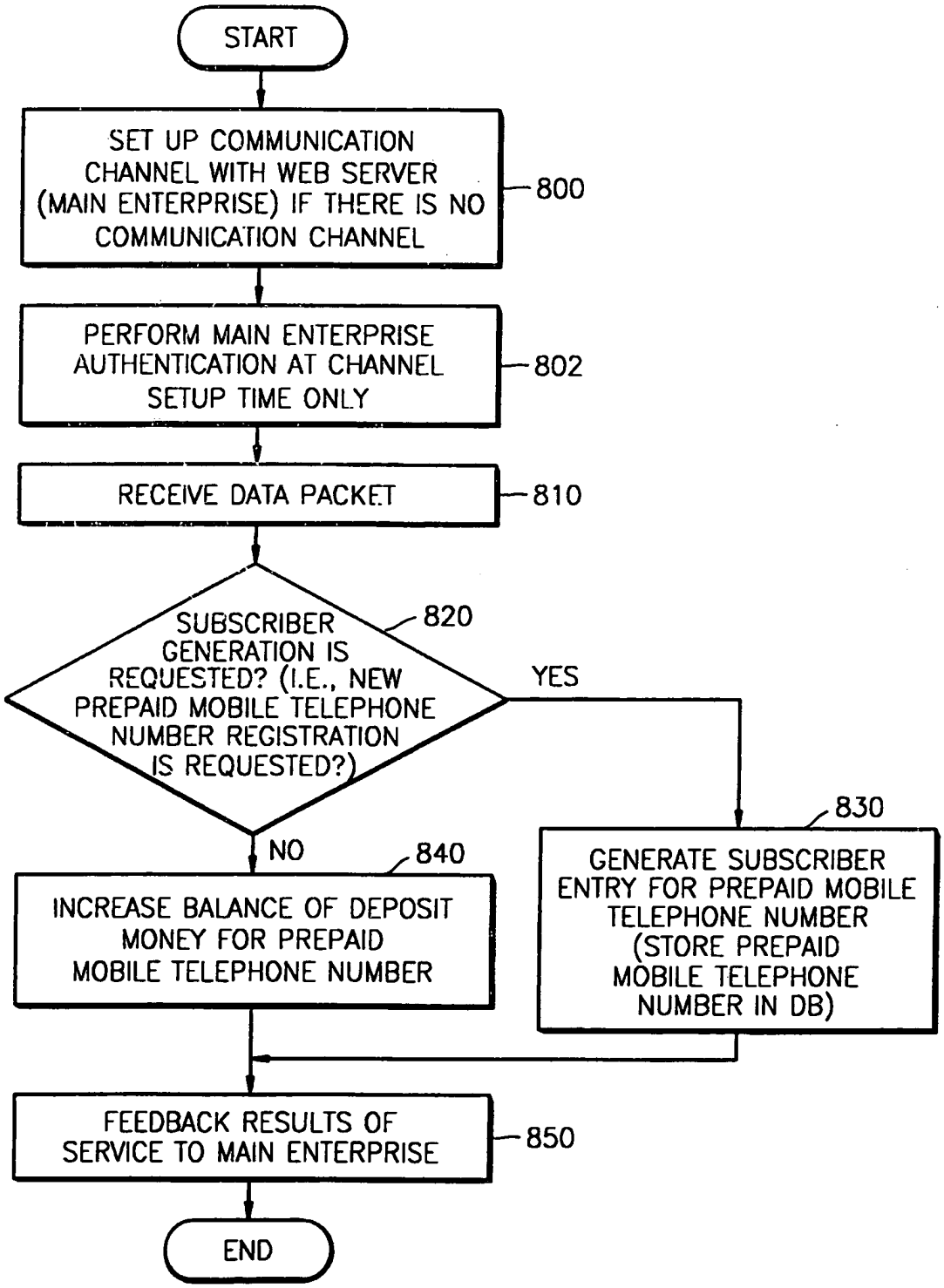

START
SET UP COMMUNICATION CHANNEL WITH INDIRECT ENTERPRISE IF THERE IS NO COMMUNICATION CHANNEL
700
PERFORM INDIRECT ENTERPRISE AUTHENTICATION AT CHANNEL SETUP TIME ONLY
702
RECEIVE SERVICE REQUEST SUCH AS BROKERAGE OR SERVICE POINT CONVERSION
710
720
IS BROKERAGE REQUESTED?
YES
NO
730
(SERVICE POINT CONVERSION SERVICE) CHANGE INFORMATION ON SERVICE POINT OF USER
740
COMMUNICATE WITH PPS SERVER
CHANGE INFORMATION ON CYBER MONEY OF INDIRECT ENTERPRISE
750
FEEDBACK RESULTS OF SERVICE PROCESSING
760
END

FIG. 8


START
SET UP COMMUNICATION CHANNEL WITH WEB SERVER (MAIN ENTERPRISE) IF THERE IS NO COMMUNICATION CHANNEL
800
PERFORM MAIN ENTERPRISE AUTHENTICATION AT CHANNEL SETUP TIME ONLY
802
RECEIVE DATA PACKET
810
SUBSCRIBER GENERATION IS REQUESTED? (I.E., NEW PREPAID MOBILE TELEPHONE NUMBER REGISTRATION IS REQUESTED?)
820
YES
NO
GENERATE SUBSCRIBER ENTRY FOR PREPAID MOBILE TELEPHONE NUMBER (STORE PREPAID MOBILE TELEPHONE NUMBER IN DB)
830
INCREASE BALANCE OF DEPOSIT MONEY FOR PREPAID MOBILE TELEPHONE NUMBER
840
FEEDBACK RESULTS OF SERVICE TO MAIN ENTERPRISE
850
END

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR00/01453

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 H04M 15/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimun documentation searched (classification system followed by classification symbols)
IPC7 H04M 11/00 H04M 15/00-15/38 H04M 17/00-17/02 H04B 7/00 H04B 7/26

Documentation searched other than minimun documentation to the extent that such documents are included in the fileds searched
Korean Patents and applications for inventions since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPI, PAJ "TELEPHONE" "PHONE" "FARE" "CHARGE" "SERVER" "CALL" "ADVERTISE"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR 99-46605 A (LG TELECOM INC.) 5 JULY 1999, see the whole document	1-29
A	US 4916731 A (SGS-THOMSON MICROELECTRONICS SA) 10 APRIL 1990, see the whole document	1, 11, 15, 18, 20, 25
Y A	JP 03-283965 A (TAMURA ELECTRIC WORKS LTD.) 13 DECEMBER 1991, see the whole document	1-3,5-7,9-11,15,16-29 4,14
A	US 5794210 A (CYBERGOLD INC.) 11 AUGUST 1998, see the whole document	1, 11, 15, 18, 20, 25
A	JP 08-172495 A (FUJITSU LTD.) 2 JULY 1996, see the whole document	1, 11, 15, 18, 20, 25
A	KR 98-77331 A (N. I. O. TELECOM INC.) 16 NOVEMBER 1998, see the whole documen	1, 11, 15, 18, 20, 25

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevence
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevence; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevence; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents,such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
26 MARCH 2001 (26.03.2001)	28 MARCH 2001 (28.03.2001)
Name and mailing address of the ISA/KR Korean Industrial Property Office Government Complex-Taejon, Dunsan-dong, So-ku, Taejon Metropolitan City 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer MIN, Hea Jung Telephone No. 82-42-481-5711

Form PCT/ISA/210 (second sheet) (July 1998)